Safety data sheet
according to UK REACH

Printing date 26.11.2024 Version number 6.01 (replaces version 5.00) Revision: 26.11.2024

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

· **1.1 Product identifier**

· **Trade name: 843AR**

· **Other Means of Identification:** Super Shield™ Silver Coated Copper Conductive Paint

· **Related Part Number:**
843AR-Liquid, 843AR-55ML, 843AR-900ML, 843AR-1G, 843AR-3.78L, 843AR-18.9L

· **UFI:** H4M0-R0JP-J00F-W8DT

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**

· **Application of the substance / the mixture** Electrically conductive coating and EMI/RFI shield.

· **Uses advised against** Not available

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

MG Chemicals Ltd. (Head Office)
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA
+(1) 905-331-1396
info@mgchemicals.com

MG Chemicals
Heame House, 23 Bliston Street
Sedgely Dudley DY3 1JA.
United Kingdom
+(44) 1663 362888

MG Chemicalst Ltd.
Level 2, Vision Exchange, Building Territorials Street,
Zone 1, Central Business, District,
Birkirkara CBD 1070,
MALTA

· **Further information obtainable from:** sds@mgchemicals.com

· **1.4 Emergency telephone number:**

Verisk 3E (Access code: 335388)
+(44) 20 3514787
+(1) 760 476 3961
UK Toll free: +(0) 800 680 0425

Members of the public seeking specific information on poisons should contact:
In England and Wales: NHS 111 - dial 111
In Scotland: NHS 24 - dial 111

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

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GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the GB CLP regulation.

· **Hazard pictograms**

GHS02 GHS07 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**
acetone
copper
heptan-2-one

· **Hazard statements**
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist, vapours, or spray.
P280	Wear protective gloves, protective clothing, and eye protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents and container in accordance with local, regional, and national regulations.

· **Additional information:**
EUH066 Repeated exposure may cause skin dryness or cracking.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.
· **vPvB:** Not applicable.

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· **Determination of endocrine-disrupting properties** Endocrine Disruptor substance ≥ 0.1% = none

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 67-64-1 EINECS: 200-662-2 Index number: 606-001-00-8	acetone Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	31.0%
CAS: 616-38-6 EINECS: 210-478-4 Index number: 607-013-00-6	dimethyl carbonate Flam. Liq. 2, H225	22.0%
CAS: 7440-50-8 EINECS: 231-159-6 Index number: 029-024-00-X	copper Aquatic Chronic 2, H411	20.0%
CAS: 110-43-0 EINECS: 203-767-1 Index number: 606-024-00-3	heptan-2-one Flam. Liq. 3, H226; Acute Tox. 4, H302; Acute Tox. 4, H332	13.0%
CAS: 108-65-6 EINECS: 203-603-9 Index number: 607-195-00-7	2-methoxy-1-methylethyl acetate Flam. Liq. 3, H226; STOT SE 3, H336	4.0%
CAS: 7440-22-4 EINECS: 231-131-3	Silver (Powder) Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10)	2.0%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **After inhalation:**
Remove person to fresh air and keep comfortable for breathing.
If feeling unwell: Call a POISON CENTRE or doctor.

· **After skin contact:**
Take off immediately all contaminated clothing.
Wash with plenty of soap and water.

· **After eye contact:**
Rinse cautiously with water for 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice or attention.

· **After swallowing:**
Rinse mouth.
Do NOT induce vomiting.
If symptoms persist consult doctor.

· **4.2 Most important symptoms and effects, both acute and delayed**
If exposed to metal fumes, chills and fever-like symptoms may occur 4-12 hours after exposure.

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· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **5.2 Special hazards arising from the substance or mixture**
The flu-like symptoms of metal fever may be delayed, occurring 4 to 12 hours after exposure.
Vapors are heavier than air. Vapors may travel to sources of ignition near the ground. They can cause flash fire or ignite explosively.
Prevent fire-fighting wash from entering waterway or sewer system.
Inhalation of metal fumes may cause metal fever and irritate the respiratory tract.
· **Hazardous combustion products:**
Carbon Oxides (COx)
toxic metal fumes
Zinc oxides

· **5.3 Advice for firefighters**
· **Protective equipment:** Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Remove or keep away all sources of extreme heat or open flames.
Avoid breathing mist, spray, or vapors.

· **6.2 Environmental precautions:**
Avoid release to the environment.
Do not allow to enter sewers/ surface or ground water.

· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Collect liquid in a sealable, chemical-resistant container.
Wash residue with a paper towel and place dirty towels in container.
Use soap and water to remove the last traces of residue.

· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Wear protective gloves and eye protection.
Wash hands and exposed skin thoroughly after handling.
Take off contaminated clothing and wash it before reuse.
Collect spillage.
Avoid breathing mist, spray, or vapors.
Use only outdoors or in a well-ventilated area.

· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Use explosion-proof apparatus / fittings and spark-proof tools.
Ground and bond container and receiving equipment.

· **7.2 Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Store in a cool location.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Store locked up.

· **7.3 Specific end use(s)** See section 1.2

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
67-64-1 acetone	
WEL	Short-term value: 3620 mg/m³, 1500 ppm Long-term value: 1210 mg/m³, 500 ppm
7440-50-8 copper	
WEL	Short-term value: 2** mg/m³ Long-term value: 0.2* 1** mg/m³ *fume **dusts and mists (as Cu)
110-43-0 heptan-2-one	
WEL	Short-term value: 475 mg/m³, 100 ppm Long-term value: 237 mg/m³, 50 ppm Sk
108-65-6 2-methoxy-1-methylethyl acetate	
WEL	Short-term value: 548 mg/m³, 100 ppm Long-term value: 274 mg/m³, 50 ppm Sk

· **Additional information:**
The lists valid during the making were used as basis.
Refer to the national or regional occupational exposure limit regulation for abbreviations and acronyms.

· **8.2 Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

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· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

· **Respiratory protection:**
Advice should be sought from respiratory protection specialists.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.

· **Hand protection**
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Protective gloves: EN374

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye/face protection**

Safety glasses or tightly sealed goggles: EN 166

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **Physical state**	Liquid
· **Form:**	Low viscosity
· **Colour:**	Light brown, metallic
· **Odour:**	Acetone-like
· **Odour threshold:**	Not determined.
· **Melting point/freezing point:**	Undetermined.
· **Boiling point or initial boiling point and boiling range**	56 °C
· **Flammability**	Highly flammable.
· **Lower and upper explosion limit**	
· **Lower:**	2 Vol % (110-43-0 heptan-2-one)

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· **Upper:**	13 Vol % (67-64-1 acetone)
· **Flash point:**	-17 °C (67-64-1 acetone)
· **Auto-ignition temperature:**	315 °C
· **Decomposition temperature:**	Not determined.
· **pH**	Not determined.
· **Viscosity:**	
· **Kinematic viscosity at 25 °C**	<30 cP
· **Dynamic:**	Not determined.
· **Solubility**	
· **water:**	Partly soluble.
· **Partition coefficient n-octanol/water (log value)**	Not determined.
· **Vapour pressure at 20 °C:**	233 hPa (67-64-1 acetone)
· **Vapour pressure at 50 °C:**	800 hPa
· **Relative density at 25 °C:**	1.1
· **Vapour density (air=1):**	≥2
· **Particle characteristics**	Not applicable.

· **9.2 Other information**

· **9.2.1 Information with regard to physical hazard classes**	
· **Flammable liquids**	Highly flammable liquid and vapour.
· **9.2.2 Other safety characteristics**	
· **Evaporation rate**	Not determined.
· **Ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Solvent content:**	
· **Organic solvents:**	48.00 %
· **VOC (EC)**	70.00 %
· **Solids content:**	28.0 %

SECTION 10: Stability and reactivity

· **10.1 Reactivity**
Acetone reacts exothermically with phosphorous oxychloride, which can lead to an explosion.

· **10.2 Chemical stability** Chemically stable at normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.

· **10.3 Possibility of hazardous reactions** No dangerous reactions known.

· **10.4 Conditions to avoid**
Avoid open flames, excessive heat, sparks, ignition sources, and incompatible substances.

· **10.5 Incompatible materials:**
Potassium tert-butoxide
Phosphorous oxychloride
Strong acids
Peroxides
Acetylenic compounds
Strong oxidizing agents

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Strong bases

· **10.6 Hazardous decomposition products:**
No dangerous decomposition products known.
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
ATE (Acute Toxicity Estimates)		
Oral	LD50	12,846 mg/kg (rat)
Inhalative	LC50/4 h	>128 mg/kg (rabbit)

67-64-1 acetone		
Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	>7,426 mg/kg (rabbit)
Inhalative	LC50/ 3 h	132 mg/L (rat)
616-38-6 dimethyl carbonate		
Oral	LD50	13,000 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)
110-43-0 heptan-2-one		
Oral	LD50	1,670 mg/kg (rat)
Dermal	LD50	12,600 µL/kg (rabbit)
Inhalative	LC50/4 h	>16.7 mg/kg (rabbit)
108-65-6 2-methoxy-1-methylethyl acetate		
Oral	LD50	8,532 mg/kg (rat)
Dermal	LD/50	5 g/kg (rabbit)
Inhalative	LC50/4 h	35.7 mg/L (rat)
7440-22-4 Silver (Powder)		
Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Causes serious eye irritation.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** May cause drowsiness or dizziness.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.
· **Summary of Effects and Symptoms by Routes of Exposure**
· **Eyes:**
pain
redness, serious irritation

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· **Skin:**
dry skin
redness, may cause mild irritation
· **Inhalation:**
cough
headache
nausea
unconsciousness
dizziness or drowsiness
· **Swallowed:**
nausea
sore throat
abdominal pain
diarrhea
see inhalation symptoms

· **Additional toxicological information:**

· **Delayed and immediate effects as well as chronic effects from short and long-term exposure**
Prolonged or repeated exposure may defat skin and cause skin dryness and cracking, and local redness and discomfort.
Exposure to silver powder may also cause argyria, an irreversible blue-grey discoloration of the skin.

· **11.2 Information on other hazards**

· **Endocrine disrupting properties**
None of the ingredients is listed.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**
Toxic to aquatic life with long lasting effects.
Avoid release to the environment.
Collect spillage.

67-64-1 acetone	
EC50/ 48 h	13,500 mg/L (daphnia)
LC50 96h	5,540 mg/L (trout)
110-43-0 heptan-2-one	
EC50/ 48 h	>100 mg/L (daphnia)
LC50 96h	131 mg/L (minnow)

· **12.2 Persistence and degradability** No further relevant information available.

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.
· **vPvB:** Not applicable.

· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.

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· **12.7 Other adverse effects**
· **Remark:**
Very toxic for fish
Toxic for fish
· **Additional ecological information:**
· **General notes:**
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
Toxic for aquatic organisms
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation** This material and its container must be disposed of as hazardous waste.

· **European waste catalogue**	
HP3	Flammable
HP4	Irritant - skin irritation and eye damage
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP14	Ecotoxic

· **Uncleaned packaging:**
· **Recommendation:**
Containers may still present a chemical hazard/ danger when empty.
Dispose of contents in accordance with all local, regional, national, and international regulations.
Where possible retain label warnings and SDS and observe all notices pertaining to the product.

SECTION 14: Transport information

· **14.1 UN number or ID number**
· **ADR, IMDG, IATA** UN1263

· **14.2 UN proper shipping name**
· **ADR, IMDG** PAINT
· **IATA** Paint

· **14.3 Transport hazard class(es)**

· **ADR, IMDG, IATA**

· **Class** 3 Flammable liquids.
· **Label** 3

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· **14.4 Packing group**
· **ADR, IMDG, IATA** II

· **14.5 Environmental hazards:**
· **Marine pollutant:** MARINE POLLUTANT
· **Special marking (ADR):** ENVIRONMENTALLY HAZARDOUS
· **Special marking (IATA):** ENVIRONMENTALLY HAZARDOUS

· **14.6 Special precautions for user** Not applicable.
· **Hazard identification number (Kemler code):** 33
· **EMS Number:** F-E,S-E
· **Stowage Category** B

· **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

· **Transport/Additional information:**

Limited Quantity

843AR-55ML, 843AR-900ML, 843AR-1G, 843AR-3.78L

· **ADR**
· **Limited quantities (LQ)** 5L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
· **Transport category** 2
· **Tunnel restriction code** D/E

· **IMDG**
· **Limited quantities (LQ)** 5L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1263 PAINT, 3, II

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Poisons Act**

· **Regulated explosives precursors (Part 1)**

None of the ingredients is listed.

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· **Regulated poisons (Part 2)**
None of the ingredients is listed.

· **Reportable explosives precursors (Part 3)**		
67-64-1	acetone	Listed

· **Reportable poisons (Part 4)**
None of the ingredients is listed.

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category**
E2 Hazardous to the Aquatic Environment
P5c FLAMMABLE LIQUIDS
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
None of the ingredients is listed.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.

· **Classification according to Regulation (EC) No 1272/2008**	
Flammable liquids	On basis of test data
Serious eye damage/irritation Specific target organ toxicity (single exposure) Hazardous to the aquatic environment - long-term (chronic) aquatic hazard	The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No 1272/2008.

· **Department issuing SDS:** Regulatory department
· **Contact:** sds@mgchemicals.com
· **Date of previous version:** 17.05.2024
· **Version number of previous version:** 5.00
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods

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IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
ATE: Acute toxicity estimate values
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2